

question

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lab9 help? - test6 fails but pf1 led toggles at correct rate when sw1 or sw2 are pressed (low)

C:\Keil\Labware\Lab9_FunctionalDebugging\Lab9.uvproj - µVision4

File Edit View Project Flash Debug Peripherals Tools SVCS Window Help

Registers

Register	Value
R0	0x00000018
R1	0x00020026
R2	0x00000031
R3	0x00000000
R4	0x00000000
R5	0x2000030C
R6	0x00000000
R7	0x00000000
R8	0x00000000
R9	0x00000000
R10	0x00001640
R11	0x00000000
R12	0x2000034C
R13 (SP)	0x20000770
R14 (LR)	0x0000031F
R15 (PC)	0x000003B8
xPSR	0x21000000

Banked System Internal Mode Thread Privilege Privileged MSP 55062500 States

Logic Analyzer

Setup... Load... Save... Min Time 0s Max Time 3.441406s Grid 0.2s Zoom In Out All Auto Min/Max Update Screen Transition Jump to Signal Info Amplitude Show Cycles Cursor

Disassembly Logic Analyzer

main.c startup.s TExaS.h tm4cl23gh6pm.h

```

73 unsigned long Time[50];
74 // you must leave the Data array defined exactly as it is
75 unsigned long Data[50], Data2[50];
76 unsigned char i;
77 int main(void) {
78     unsigned long lastSW1, lastSW2, nowSW1, nowSW2, nowLED;
79     unsigned long Led;
80     unsigned char inputChange;
81
82     TExaS_Init(SW_PIN_PF40, LED_PIN_PF1); // activate grader and set system clock to 16 MHz
83     PortF_Init(); // initialize PF1 to output
84     SysTick_Init(); // initialize SysTick, runs at 16 MHz
85 }

```

Command

Pass: SW2 pressed has LED toggling every 50ms
 5) Switches not pressed test, LED should be off :
 Pass: Switches not pressed has LED off
 6) Both SW1, SW2 pressed, LED should toggle every 50ms :

Watch 1

Name	Value	Type
[1]	0x00000001	unsigned long
[2]	0x00000002	unsigned long
[3]	0x00000003	unsigned long
[4]	0x00000004	unsigned long
[5]	0x00000005	unsigned long

Simulation t1: 3.44140625 sec L83 C:46 CAP NUM SCRL OVR R/W

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Simulation t1: 3.44140625 sec L83 C:46 CAP NUM SCRL OVR R/W

Command

```
Start grading Lab 9
Clock rate appears to be : 16 MHz
Running 8 tests
0) Initialization tests :

- Verifying PORTF configuration...
Pass: PORTF DEN bits for PF4, PF1, PF0 are high
Pass: PORTF DIR bits for PF4, PF0 are low
Pass: PORTF DIR bit for PF1 is high
Pass: PORTF PF4, PF0 PUR bits are high
Pass: PORTF PF1 PUR bit is low
Pass: PORTF PF4, PF1, PF0 PDR bits are low
Pass: PORTF PF4, PF1, PF0 AFSEL bits are zero
Pass: PORTF PF4, PF1, PF0 AMSEL bits are zero
Pass: PORTF PF4, PF1, PF0 PCTL bits are zero
TEaS found Data array at 0x20000104
1) Switches not pressed test, LED should be off :
Pass: Switches not pressed has LED off
2) SW1 pressed, LED should toggle every 50ms :
- NOTE: due to a bug in Keil, expect the board to run a little slower.
- Approximate time between toggles: 55 ms
Pass: Heartbeat appears to be working properly.
Pass: SW1 pressed has LED toggling every 50ms
3) Switches not pressed test, LED should be off :
Pass: Switches not pressed has LED off
4) SW2 pressed, LED should toggle every 50ms :
- NOTE: due to a bug in Keil, expect the board to run a little slower.
- Approximate time between toggles: 52 ms
Pass: Heartbeat appears to be working properly.
Pass: SW2 pressed has LED toggling every 50ms
5) Switches not pressed test, LED should be off :
Pass: Switches not pressed has LED off
6) Both SW1, SW2 pressed, LED should toggle every 50ms :
```

Watch 1		
Name	Value	Type
Data	0x20000104 Data	unsigned long[50]
[0]	0x00000003	unsigned long
[1]	0x00000001	unsigned long
[2]	0x00000003	unsigned long
[3]	0x00000001	unsigned long
[4]	0x00000003	unsigned long
[5]	0x00000001	unsigned long
[6]	0x00000003	unsigned long
[7]	0x00000001	unsigned long
[8]	0x00000003	unsigned long
[9]	0x00000001	unsigned long
[10]	0x00000003	unsigned long
[11]	0x00000001	unsigned long
[12]	0x00000003	unsigned long
[13]	0x00000001	unsigned long
[14]	0x00000003	unsigned long
[15]	0x00000001	unsigned long
[16]	0x00000003	unsigned long
[17]	0x00000001	unsigned long
[18]	0x00000003	unsigned long
[19]	0x00000012	unsigned long
[20]	0x00000010	unsigned long
[21]	0x00000012	unsigned long
[22]	0x00000010	unsigned long
[23]	0x00000012	unsigned long
[24]	0x00000010	unsigned long
[25]	0x00000012	unsigned long
[26]	0x00000010	unsigned long
[27]	0x00000012	unsigned long
[28]	0x00000010	unsigned long
[29]	0x00000012	unsigned long
[30]	0x00000010	unsigned long
[31]	0x00000012	unsigned long
[32]	0x00000010	unsigned long

Call Stack + Locals | Watch 1 | Watch 2 | Memory 1

Watch 1			
Name	Value	Type	
[32]	0x00000010	unsigned long	
[33]	0x00000012	unsigned long	
[34]	0x00000010	unsigned long	
[35]	0x00000012	unsigned long	
[36]	0x00000010	unsigned long	
[37]	0x00000012	unsigned long	
[38]	0x00000002	unsigned long	
[39]	0x00000000	unsigned long	
[40]	0x00000002	unsigned long	
[41]	0x00000000	unsigned long	
[42]	0x00000002	unsigned long	
[43]	0x00000000	unsigned long	
[44]	0x00000002	unsigned long	
[45]	0x00000000	unsigned long	
[46]	0x00000002	unsigned long	
[47]	0x00000000	unsigned long	
[48]	0x00000002	unsigned long	
[49]	0x00000000	unsigned long	
i	0x32 '2'	unsigned char	
Data2	0x200001CC Data2	unsigned long[50]	
[0]	0x00000000	unsigned long	
[1]	0x00000001	unsigned long	
[2]	0x00000002	unsigned long	
[3]	0x00000003	unsigned long	
[4]	0x00000004	unsigned long	
[5]	0x00000005	unsigned long	
[6]	0x00000006	unsigned long	
[7]	0x00000007	unsigned long	
[8]	0x00000008	unsigned long	
[9]	0x00000009	unsigned long	
[10]	0x0000000A	unsigned long	
[11]	0x0000000B	unsigned long	
[12]	0x0000000C	unsigned long	
[13]	0x0000000D	unsigned long	

Watch 1

Name	Value	Type
[14]	0x0000000E	unsigned long
[15]	0x0000000F	unsigned long
[16]	0x00000010	unsigned long
[17]	0x00000011	unsigned long
[18]	0x00000012	unsigned long
[19]	0x00000013	unsigned long
[20]	0x00000014	unsigned long
[21]	0x00000015	unsigned long
[22]	0x00000016	unsigned long
[23]	0x00000017	unsigned long
[24]	0x00000018	unsigned long
[25]	0x00000019	unsigned long
[26]	0x0000001A	unsigned long
[27]	0x0000001B	unsigned long
[28]	0x0000001C	unsigned long
[29]	0x0000001D	unsigned long
[30]	0x0000001E	unsigned long
[31]	0x0000001F	unsigned long
[32]	0x00000020	unsigned long
[33]	0x00000021	unsigned long
[34]	0x00000022	unsigned long
[35]	0x00000023	unsigned long
[36]	0x00000024	unsigned long
[37]	0x00000025	unsigned long
[38]	0x00000026	unsigned long
[39]	0x00000027	unsigned long
[40]	0x00000028	unsigned long
[41]	0x00000029	unsigned long
[42]	0x0000002A	unsigned long
[43]	0x0000002B	unsigned long
[44]	0x0000002C	unsigned long
[45]	0x0000002D	unsigned long
[46]	0x0000002E	unsigned long
[47]	0x0000002F	unsigned long

[44]	0x0000002C	unsigned long
[45]	0x0000002D	unsigned long
[46]	0x0000002E	unsigned long
[47]	0x0000002F	unsigned long
[48]	0x00000030	unsigned long
[49]	0x00000031	unsigned long
<Enter expression>		

code snippet - think it meets guidelines:

```
main.c startup.s TExaS.h tm4c123gh6pm.h
90 while(i < 50){
91     Led = GPIO_PORTF_DATA_R;    // read previous
92     nowSW1 = Led & 0x10;
93     nowSW2 = Led & 0x01;
94     nowLED = Led & 0x02;
95     inputChange = 0x00;
96     if ((lastSW1 != nowSW1) || (lastSW2 != nowSW2)) { //if switch 1 or 2's input value changed record data
97         //Data[i] = Led & 0x13; //only record bits 4,1,0 (PF4,PF1,PF0)
98         //i++;
99         inputChange = 0x01;
100        lastSW1 = nowSW1;
101        lastSW2 = nowSW2;
102    }
103    if ((nowSW1 == 0x00000000) || (nowSW2 == 0x00000000)) { //if switch 1 or 2's button is pressed
104        Led = Led^0x02;        // toggle red LED
105        GPIO_PORTF_DATA_R = Led;    // output
106        Led = GPIO_PORTF_DATA_R;    // record data since PF1 output just changed
107        Data[i] = Led & 0x13; //only record bits 4,1,0 (PF4,PF1,PF0)
108        Data2[i] = i;
109        i++;
110        Delay();
111    }
112    else { //neither switch 1 or switch 2 are pressed so turn OFF LED PF1 output
113        GPIO_PORTF_DATA_R &= ~0x02; //output PF1 red LED = 0 when neither button pressed
114    }
115 }
```

lab9

Just now by Karen West

the students' answer, where students collectively construct a single answer[Click to start off the wiki answer](#)**followup discussions** for lingering questions and comments